

Motorola[®] HOME Radio

SERVICE MANUAL

MODELS

5R11

5R12

5R13

5R14

5R15

5R16

CHASSIS

HS-254

GENERAL INFORMATION

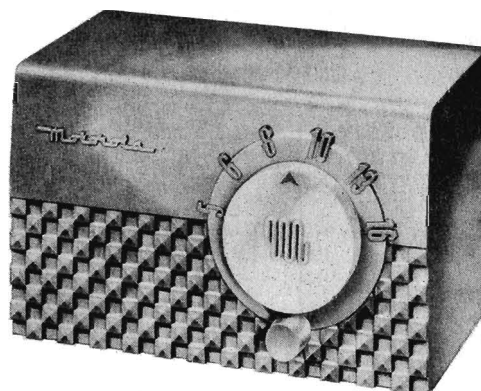
TYPE - AC-DC table model superheterodyne receiver with loop antenna.

RECEIVER MODELS -	Model	Color
	5R11	Walnut-Mahogany
	5R12	Ivory
	5R13	Maroon
	5R14	Gray
	5R15	Green
	5R16	Yellow

TUBE COMPLEMENT -	12BE6	Converter
	12BA6	IF Amplifier
	12AT6	Det, AVC & AF Amp
	50C5	Power Amplifier
	35W4	Rectifier

TUNING RANGE - 535 to 1620 Kc IF - 455 Kc

POWER SUPPLY - 117 volts, AC or DC; 35 watts



INSTALLATION & OPERATING INSTRUCTIONS

POWER SWITCH & VOLUME CONTROL. The "off-on" switch and the volume control are combined and are operated with the small lower knob. NOTE: If the receiver does not operate from DC power, reverse the plug in the power outlet. When operating from AC power, reception may sometimes be improved by reversing the power plug in the outlet.

TUNING CONTROL. Stations are tuned in with the large

upper knob.

ANTENNA. A built-in loop antenna eliminates the need for an outside antenna in most locations. When receiving a weak station, rotate the receiver slightly for best signal strength. If additional pick-up is necessary, connect an external antenna to the radio by following the instructions printed on the rear panel. CAUTION: Never connect the radio chassis to a water pipe, radiator, or other ground.

SERVICE NOTES

The chassis of this receiver is connected directly to the power line. When operating the chassis (from an AC line) outside of its cabinet, use an isolation transformer between the power line and the receiver to reduce the possibility of an electrical shock.

TO REMOVE CHASSIS FROM CABINET:

1. Pull off the two control knobs from the front of the re-

ceiver.

2. Remove the two split plugs which hold the loop to the cabinet.

3. Remove the two hex head screws at the rear edge of the chassis.

4. Slide the chassis from the cabinet.

4545 AUGUSTA BOULEVARD

Motorola Inc.

CHICAGO 51, ILLINOIS

ALIGNMENT

NOTE: If AC power is used, it is recommended that an isolation transformer be placed between the power line and the receiver to avoid hum and electrical shocks. If an isolation transformer is not available, connect the low side of the signal generator to chassis through a .1 mf capacitor.

1. Connect a low range output meter across the speaker voice coil.
2. Connect the low side of the signal generator to chassis.
3. Set the signal generator for 400 cycle, 30% modulation.

4. Turn the receiver volume control to maximum.

5. Use a small fibre screwdriver for aligning the IF and diode transformers.

6. As stages are brought into alignment, reduce the signal generator output to a level which produces less than .40 volts (.05 watt) across the voice coil to avoid overloading the receiver.

7. See Figure 1 for adjustment locations and the following chart for procedure.

ALIGNMENT CHART

STEP	DUMMY ANTENNA	GENERATOR CONNECTION	GENERATOR FREQUENCY	GANG SETTING	ADJUST	REMARKS
IF ALIGNMENT						
1.	.1 mf	Grid of conv. (pin 7, 12BE6)	455 Kc	Fully open	1, 2, 3, & 4 (IF cores)	Adjust for maximum.
RF ALIGNMENT						
2.	-	Grid of conv. (pin 7, 12BE6)	1620 Kc	Fully Open	5 (Osc)	Adjust for maximum.
3.	-	Radiation loop*	1400 Kc	Tune for max	6 (Ant)	Adjust for maximum.

*Connect generator output across 5" diameter, 5 turn loop and couple inductively to receiver loop. Keep loops at least 12" apart.

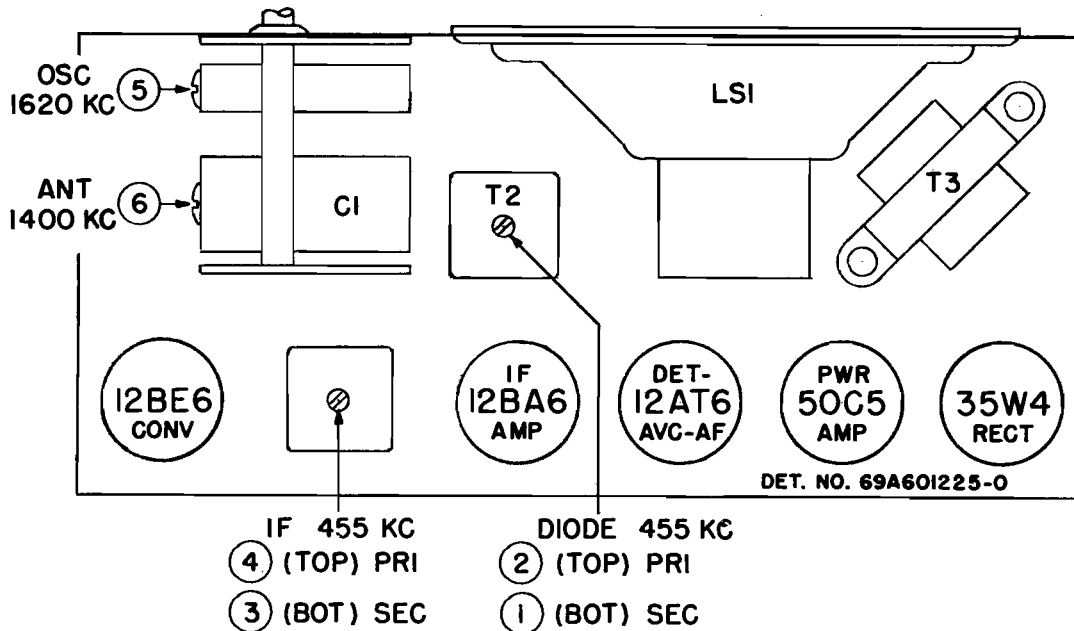


FIGURE 1. TUBE AND TRIMMER LOCATIONS

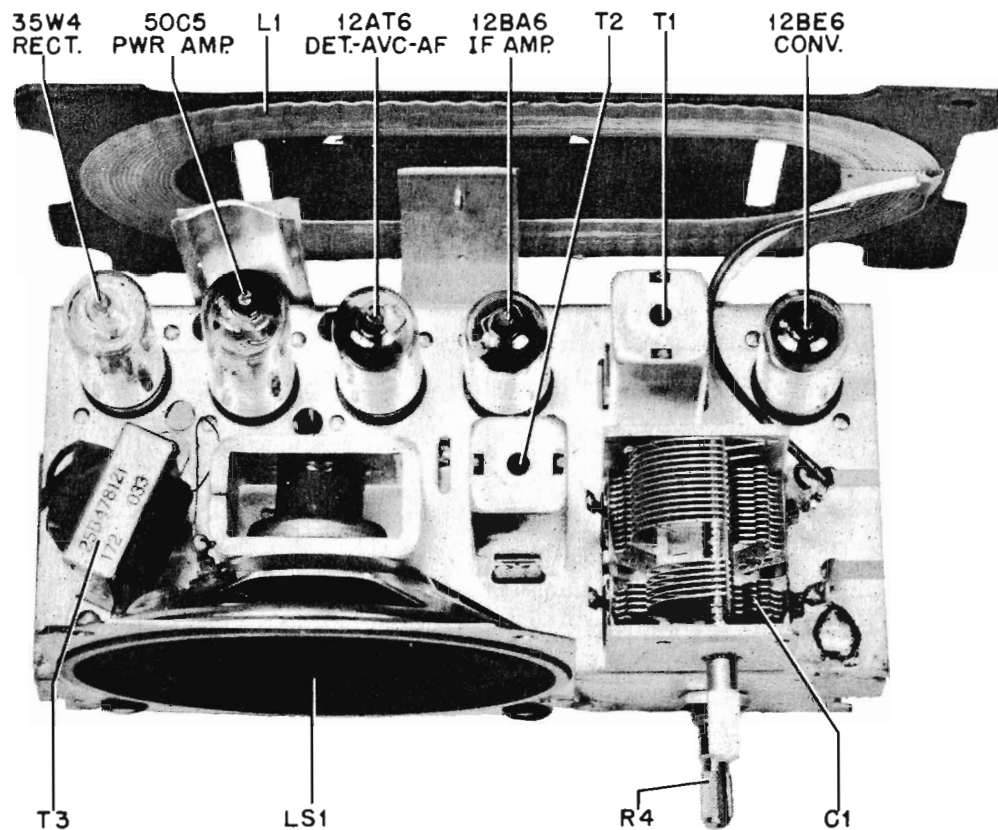


FIGURE 2. TOP VIEW OF CHASSIS

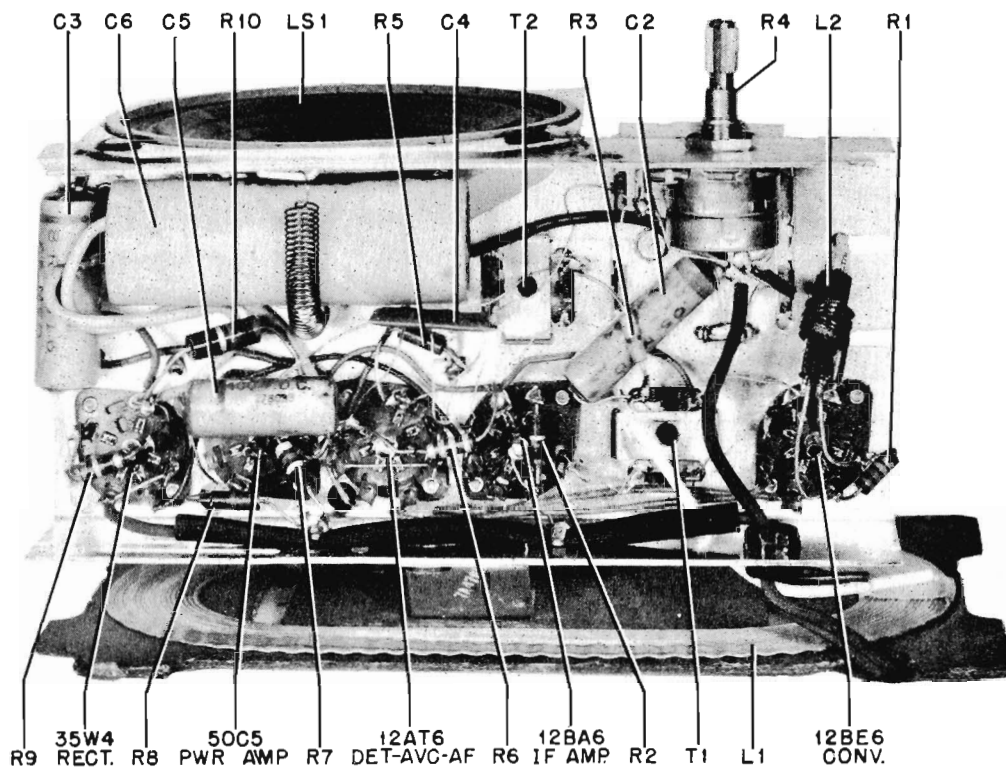


FIGURE 3. BOTTOM VIEW OF CHASSIS USING MULTIPLE CERAMIC CAPACITOR PLATE

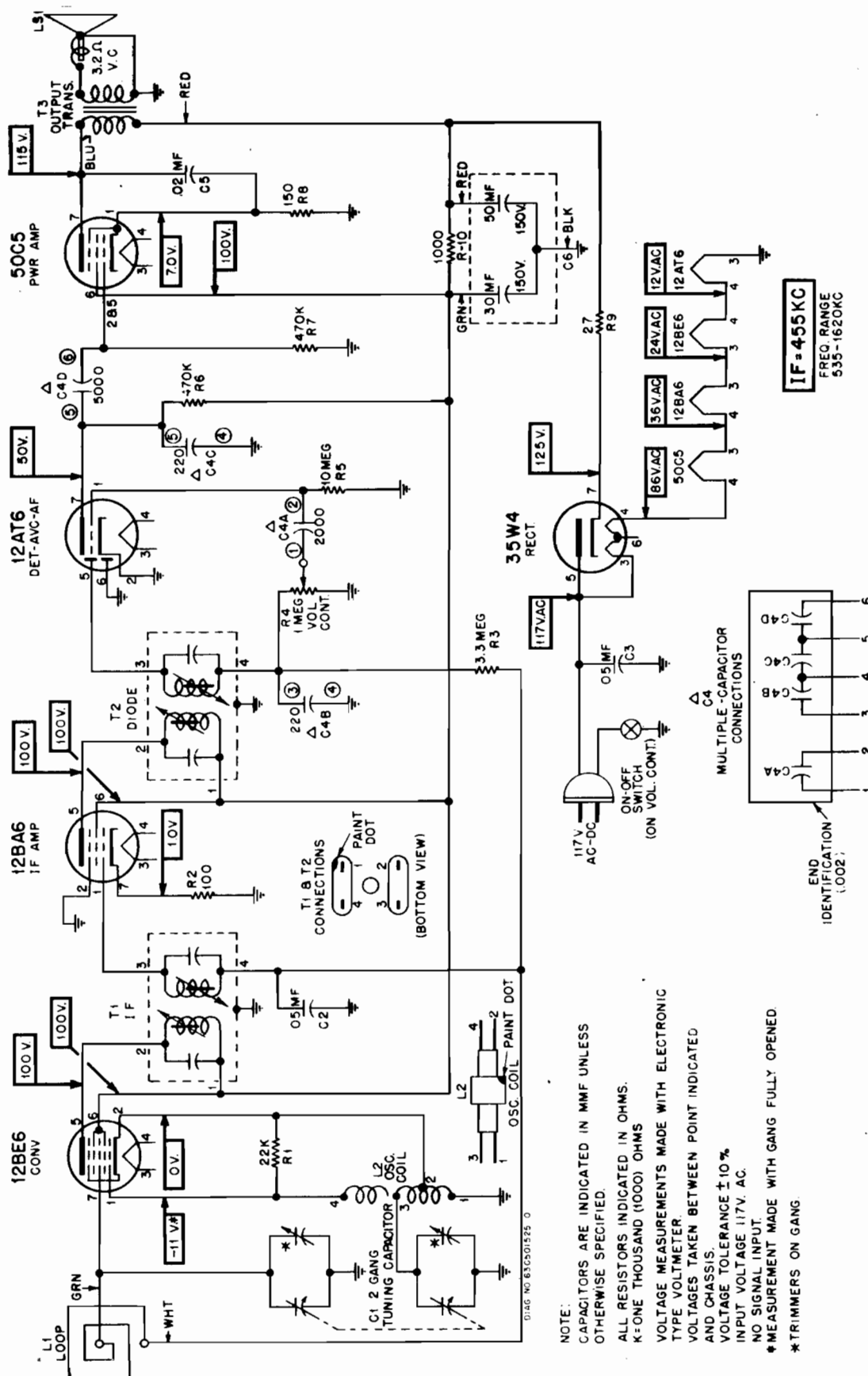


FIGURE 4. SCHEMATIC DIAGRAM OF CHASSIS USING MULTIPLE CERAMIC CAPACITOR PLATE

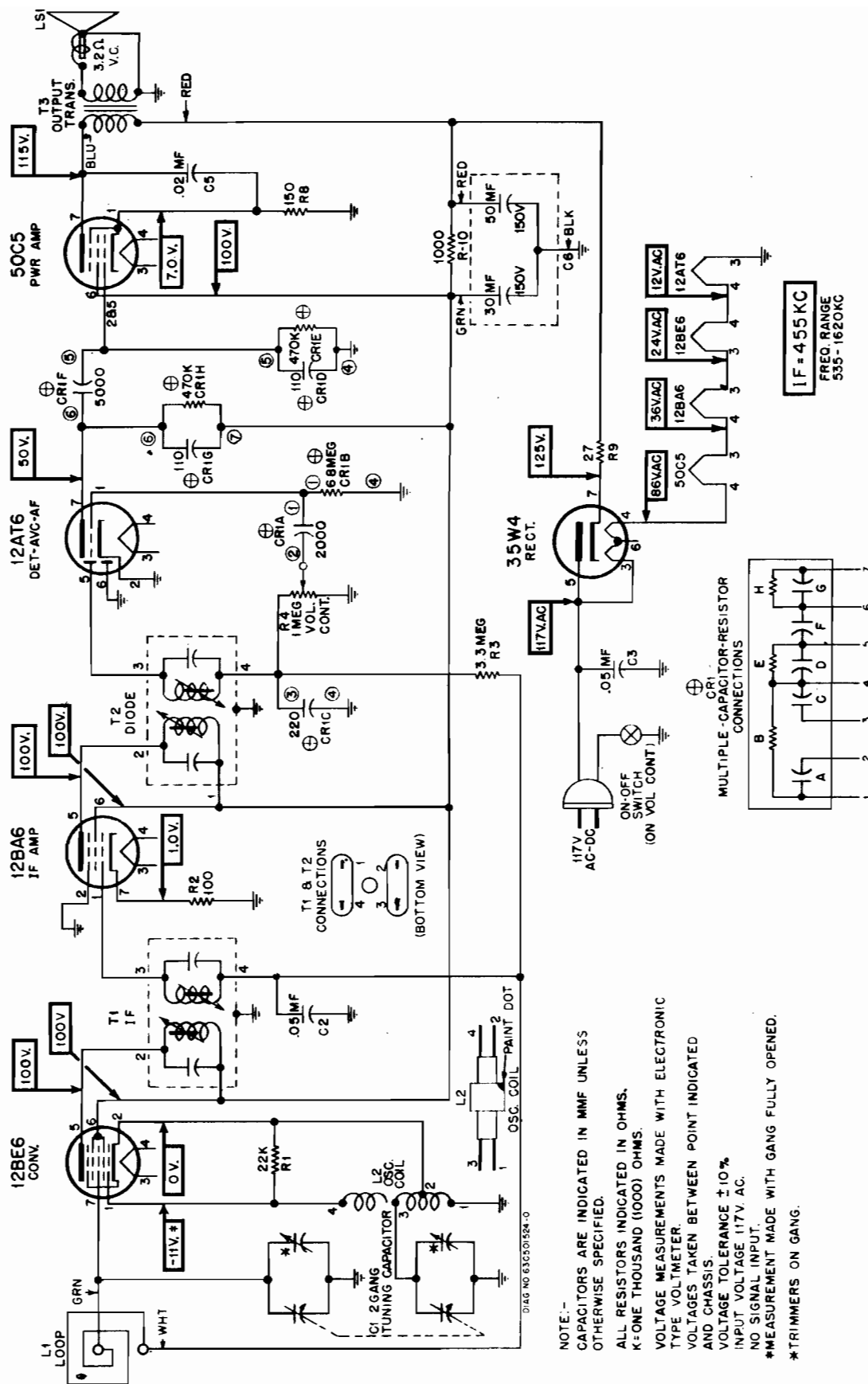


FIGURE 6. SCHEMATIC DIAGRAM OF CHASSIS USING MULTIPLE CERAMIC CAPACITOR-RESISTOR PLATE

REPLACEMENT PARTS LIST

NOTE: When ordering parts, specify model number of set in addition to part number and description of part.

Ref. No.	Part Number	Description	List Price	Part No.	Description	List Price
CHASSIS PARTS - ELECTRICAL				CHASSIS PARTS - MECHANICAL		
<u>Capacitors</u>				7A478118	Bracket, loop mtg.....	.05
C-1	19B600458	Variable: 2 gang; with pulley.....	2.55	43A692012	Bushing, strain relief: line cord (use with 43K692013).....	.05
C-2	8R9821	Paper: .05 mf 200V.....	.20	42A485548	Clip, IF coil mtg.....	.20
C-3	8R9816	Paper: .05 mf 400V.....	.20	30K478137	Cord, line: with plug; 6 feet long	.55
C-4	21B482847	Ceramic, multiple: 2000, 220,220, 5000 mmf.....	.65	5A484268	Grommet, rubber (speaker mtg).....	.20
C-5	8R9802	Paper: .02 mf 400V.....	.20	14A478119	Insulator, loop bracket mtg: fibre	.15
C-6	23B600855	Electrolytic: 50-30 mf/150V	1.10	2S7051	Nut, hex palnut: 3/8-32 x 9/16 (volume control mtg).....	.15
<u>Capacitor-Resistor</u>				43K692013	Retainer, strain relief: line cord (use with 43A692012).....	.05
CR-1	21B601007	Capacitor-Resistor: 2000, 220, 5000, 110, 110 mmf, 6.8 meg, 470,000, 470,000 ohms.....	.85	5S7771	Rivet: .088 x 3/16; stl; nkl pl (tube socket mtg).....	.50
<u>Coils</u>				5S7707	Rivet: .122 x 5/32; stl; nkl pl (output trans mtg).....	.50
L-1	24C600543	Antenna Loop and Panel Assembly.....	.95*	5S7703	Rivet: .122 x 7/32; stl; nkl pl (loop bracket and speaker mtg).....	.50
L-2	24A478129	Oscillator coil (red dot).....	.90	3S7247	Screw, machine: 6-32 x 3/16 slotted locking hex head; cad pl (gang mtg).....	.15
<u>Speaker</u>				26A478117	Shield, electrostatic (on rear of chassis).....	.55
LS-1	50B690661	Speaker: 4" PM; 3.2 ohm VC. exch	2.60* 1.95	9A472534	Socket, tube: miniature; 7 prong..	.15
<u>Resistors</u>				41A73996	Spring, tension (electrolytic mtg)	.05
Note: All resistors are insulated carbon type unless otherwise specified				46A478145	Stud, tri-mount (mounts loop to bracket).....	.15
R-1	6R6028	22,000 20% 1/2W.....	1.20	14A11493	Washer, shoulder: fibre (loop bracket mtg).....	.35
R-2	6R6018	110 20% 1/2W.....	1.20	CABINET PARTS		
R-3	6R2118	3.3 meg 20% 1/2W.....	1.20	16K600181	Cabinet, table model: walnut-mahogany (5R11).....	2.85*
R-4	18K600449	Volume control: 1 meg; with switch.....	1.00	16E600157	Cabinet, table model: ivory(5R12).....	3.50*
R-5	6R2109	10 meg 20% 1/2W.....	1.20	16K600183	Cabinet, table model: maroon(5R13).....	3.50*
R-6	6R6032	470,000 20% 1/2W.....	1.20	16K600184	Cabinet, table model: gray (5R14).....	3.50*
R-7	6R6032	470,000 20% 1/2W.....	1.20	16K600185	Cabinet, table model: green(5R15).....	3.50*
R-8	6R3992	150 20% 1/2W.....	1.20	16K600186	Cabinet, table model: yellow(5R16).....	3.50*
R-9	6R5683	27 10% 1/2W.....	1.20	36B600485	Knob, tuning: ivory (5R11,5R13, 5R14, and 5R15).....	.25
R-10	6R3953	1000 20% 1W.....	.20	36K600486	Knob, tuning: red (5R12).....	.25
<u>Transformers</u>				36K600487	Knob, tuning: blue(5R16).....	.25
T-1,2	24B485553	IF and Diode Transformer (green dot): 455 KC; complete with capacitors, cores, and shield.....	.95	36B600544	Knob, volume control: walnut(5R11).....	.10
T-3	25B478121	Output Transformer.....	1.05	36K600545	Knob, volume control: ivory (5R12).....	.10
				36K600546	Knob, volume control: maroon(5R13).....	.10
				36K600547	Knob, volume control: gray(5R14).....	.10
				36K600548	Knob, volume control: green (5R15).....	.10
				36K600549	Knob, volume control: yellow(5R16).....	.10
				3S476083	Screw, machine: 6-32 x 5/16; slotted locking hex head; cad pl; (chassis mtg).....	.15
				38A25507	Plug, split (mounts back panel to cabinet).....	.15
				11M488253	Tape, aluminum foil: 2 1/2" wide.....	.10

PRICES SUBJECT TO CHANGE WITHOUT NOTICE

*Plus Federal Excise Tax at Current Rate

